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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

MEMORANDUM

TO: Robert Taylor (PM25)
Herbicide-Fungicide Branch
Registration Division

FROM: James Akerman, Chief
Ecological Effects Branch
Environmental Fate and Effects Division

SUBJECT: Bromoxynil Octanoate Data Reviews

The Ecological Effects Branch has reviewed five studies conducted with bromoxynil octanoate. The results of this review are summarized below.

CITATION: Giddings, J.M. 1990. Bromoxynil Octanoate - Toxicity to the Freshwater Diatom Navicula pelliculosa. Report No. 90-8-3431. Conducted by Springborn Laboratories, Inc., Wareham, MA. Submitted by Rhone-Poulenc Ag Company, Research Triangle Park, NC. EPA MRID No. 416060-01.

CONCLUSIONS: This study is not scientifically sound and does not fulfill the guideline requirements for a Tier II growth and reproduction test using a non-target aquatic plant. The test material had limited solubility and any precipitates present were not filtered away prior to measuring the concentration. The 120-hour EC_{50} of 0.051 mg a.i./L (measured) would be expected to have a detrimental effect on Navicula pelliculosa when applied at an application rate up to 0.375 lb a.i./acre (i.e. 0.275 mg a.i./L). The NOEC was determined to be 0.0093 mg a.i./L mean measured concentration.

CITATION: Giddings, J.M. 1990. Bromoxynil Octanoate - Toxicity to the Marine Diatom Skeletonema costatum. Prepared by Springborn Laboratories, Inc., Wareham, Massachusetts. SLI Report #90-8-3440. SLI Study #10566-1089-6142-450. Submitted by Rhone-Poulenc Ag Company, Research Triangle Park, North Carolina. MRID Number 416060-02.

CONCLUSIONS: Due to the problem with the test material solubility observed in other studies using the same chemical, this study cannot be properly validated until the measured concentrations (addendum to this study report) are submitted. With a 5-day EC50

value of 0.14 mg a.i./L nominal concentration and a 5-day NOEC value of 0.033 mg a.i./L nominal concentration, Bromoxynil is expected to exert a detrimental effect on the marine diatom (Skeletonema costatum) when applied at application rates up to 0.375 lbs a.i./A.

CITATION: Giddings, J.M. 1990. Bromoxynil octanoate-Toxicity to the Duckweed Lemna gibba G3. SLI Report No. 90-8-3430. SLI Study No. 10566.1089.6144.410. Conducted by Springborn Laboratories, Inc., Wareham, Massachusetts. Submitted by Rhone-Poulenc Ag Company, Research Triangle Park, NC. EPA MRID No. 416060-03.

CONCLUSIONS: This study is not scientifically sound and does not fulfill the guideline requirements for growth and reproduction of aquatic plants (Tier 2) for the following reasons: 1) The actual exposure concentrations are not known, and 2) The test temperature fluctuated from 19 to 29°C.

CITATION: Giddings, J.M. 1990. Bromoxynil Octanoate - Toxicity to the Freshwater Green Alga Selenastrum capricornutum. Prepared by Springborn Laboratories, Inc., Wareham, Massachusetts. SLI Report #90-8-3436. SLI Study #10566-1089-6142-430. Submitted by Rhone-Poulenc Ag Company, Research Triangle Park, North Carolina. MRID Number 416060-04.

CONCLUSIONS: This study is not scientifically sound and does not fulfill the guideline requirements for a Tier II growth and reproduction test using a non-target aquatic plant. Due to the inconsistency of the measured concentrations, the actual exposure concentrations of this test are not known. With a 5-day EC50 value of 0.21 mg/L mean measured concentration, Bromoxynil is expected to exert a detrimental effect on the green alga (Selenastrum capricornutum) when applied at application rates up to 0.375 lbs a.i./A.

CITATION: Giddings, J.M. 1990. Bromoxynil Octanoate - Toxicity to the Freshwater Bluegreen Alga Anabaena flos-aquae. Prepared by Springborn Laboratories, Inc., Wareham, Massachusetts. SLI Report #90-8-3434. SLI Study #10566.1089.6142.420. Submitted by Rhone-Poulenc Ag Company, Research Triangle Park, North Carolina. MRID Number 416060-05.

CONCLUSIONS: This study is not scientifically sound and does not fulfill the guideline requirements for a Tier II growth and reproduction test using a non-target aquatic plant. Due to the inconsistency of the measured concentrations, the actual exposure concentrations of this test are not known. Based on cell density, the 5-day EC50 value was determined to be >0.63 mg/L (the highest mean measured concentration tested). The 5-day NOEC value was determined to be 0.63 mg/L mean measured concentration.

At the present time, the Tier II requirements for testing aquatic plant growth and reproduction with Selenastrum capricornutum, Lemna gibba, Skeleonema costatum, Anabena flos-aquae

and a freshwater diatom have not been met. If you have any questions, please contact Clyde Houseknecht at 557-4372.